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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/816,403	04/01/2004	Robin J. Guthrie	C-2480	9610
7590		12/10/2007		
M. P. Williams				
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Manchester, CT 06040				
			EXAMINER	
			WALKER, KEITH D	
			ART UNIT	PAPER NUMBER
			1795	
			MAIL DATE	DELIVERY MODE
			12/10/2007	PAPER

**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

<b>Office Action Summary</b>	Application No. 10/816,403	Applicant(s) GUTHRIE, ROBIN J.	
	Examiner Keith Walker	Art Unit 1795	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☒ Responsive to communication(s) filed on 21 September 2007.
- 2a) ☒ This action is **FINAL**.                      2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 1-5 and 7-9 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-5 and 7-9 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 21 September 2007 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All    b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- |  |   |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892)   | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)                       | 5) <input type="checkbox"/> Notice of Informal Patent Application                       |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)<br>Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____  |

## **DETAILED ACTION**

### ***Information Disclosure Statement***

An Information Disclosure Statement has not been filed as of the writing of this office action.

### ***Drawings***

The amendments to the specification, with respect to the drawings, were received on 9/21/07 and are accepted.

### ***Claim Interpretation***

Regarding claim 1, this claim is being interpreted as a Jepson claim, since the claim language states, "characterized by the improvement comprising". As such the preamble is considered known prior art and is interpreted as such per MPEP 608.01 (i).

Regarding the terms 'grooves' and 'transverse portions' in the limitations, since a difference between these two terms is not provided in the specification, the two words are interpreted as having the same meaning.

### ***Claim Rejections - 35 USC § 112***

The following is a quotation of the first paragraph of 35 U.S.C. 112:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

1. Claim 5 is rejected under 35 U.S.C. 112, first paragraph, because the specification, while being enabling for an aspect ratio of length to width, does not reasonably provide enablement for an aspect ratio of width to length. The specification

does not enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make the invention commensurate in scope with these claims.

The breath of the claims is broader than the amount of direction provided by the inventor. The instant disclosure teaches that the aspect ratio made by the length of the transverse portion to the width of the transverse portion is about the same as the grooves to transverse channels (Pg. 5 of instant specification). A ratio of width to length would not produce the same ratio. Only two examples are provided in the instant disclosure, both show an aspect ratio of length to width and none showing width to length. Clearly the instant specification lacks working examples of making a flow field plate with the aspect ratio of width to length about the same as the grooves to transverse channels.

The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter, which the applicant regards as his invention.

2. Claim 5 is rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. The upper and lower parameters for "about the same as" are not defined, exemplified or in any manner disclosed. No boundaries as to what would constitute "about the same as" are provided in the instant specification and therefore it is unclear to the public what would differences in the ratio's would constitute infringing on the limitation.

***Claim Rejections - 35 USC § 102***

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

1. Claims 1, 2 & 6-9 are rejected under 35 U.S.C. 102(b) as being anticipated by US Patent 6,255,011 (Fujii).

Fujii teaches a reactant flow field plate having inlet and outlet edges. Flow through channels extend longitudinally and transversely, where some of the transverse portions have more than one groove (Fig. 6; 7:25-40). The flow plate has inlet and outlet holes offset from each other and the holes provide an internal manifold.

***Claim Rejections - 35 USC § 103***

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

2. Claims 3 & 4 are rejected under 35 U.S.C. 103(a) as being unpatentable over US Patent 6,255,011 (Fujii) in view of US Publication 2004/0101736 (Tawfik).

The teachings of Fujii as discussed above are incorporated herein.

Fujii is silent to interdigitated channels.

Tawfik teaches interdigitated channels that enhance the reaction of the gases with the electrode surface (Figs. 12 & 13; [0048]). The motivation to use the interdigitated channels is to improve the density output of the fuel cell by enhancing the interaction between the reactant gases and the electrode.

Therefore it would have been obvious to one of ordinary skill in the art at the time the claimed invention was made to modify the flow fields of Fujii with the interdigitated channels of Tawfik to improve the power density output of the fuel cell.

3. Claims 3 & 4 are rejected under 35 U.S.C. 103(a) as being unpatentable over US Patent 6,255,011 (Fujii) in view of US Patent 5,300,370 (Washington).

The teachings of Fujii as discussed above are incorporated herein.

Fujii is silent to interdigitated channels.

Washington teaches interdigitated flow channels that force the reactant stream through the adjacent electrode material (Fig. 5; 11:50-68). The motivation to use the interdigitated channels is to improve the amount of reactant interfaces with the electrode. Improving the interaction between the reactant gas and the electrode increases the density output of the fuel cell.

Therefore it would have been obvious to one of ordinary skill in the art at the time the claimed invention was made to modify the flow fields of Fujii with the interdigitated channels of Washington to improve the power density output of the fuel cell.

***Response to Arguments***

Applicant's arguments filed 9/21/07 have been fully considered but they are not persuasive.

Applicant states "A negative IDS was filed with the application"; however, it unclear what constitutes a 'negative IDS' and nothing resembling an IDS has been placed in the record.

Applicant alleges support for claim 5 is provided by Fig. 8, where "the width is 69.5 mm whereas the length is only 54.5 mm." These dimensions are not listed anywhere in the instant specification and the drawings are not stated as being to scale and therefore cannot be used to obtain sizes.

Applicant argues the "longitudinal flow direction extending between said inlet ends and said outlet ends" must be the "horizontal direction (direction of the arrow B)". However, as stated in the same claim 1, "an inlet portion extending longitudinally from, at or near said inlet edge" (emphasis added) and so the vertical portions are near the inlet edge and have inlet ends and outlet ends with a longitudinal flow between. Therefore, the limitation is anticipated by the teachings of the prior art.

Applicant argues there is no indication in the prior art as to how one would accommodate interdigitated channels that have either one or more than one groove. In response to applicant's arguments against the references individually, one cannot show nonobviousness by attacking references individually where the rejections are based on combinations of references. See *In re Keller*, 642 F.2d 413, 208 USPQ 871 (CCPA

1981); *In re Merck & Co.*, 800 F.2d 1091, 231 USPQ 375 (Fed. Cir. 1986).

Furthermore, Washington's channels are one groove channels.

Applicant argues there is no indication in the prior art as to how one would accommodate interdigitated channels that have either one or two grooves in transverse areas. In response to applicant's arguments against the references individually, one cannot show nonobviousness by attacking references individually where the rejections are based on combinations of references. See *In re Keller*, 642 F.2d 413, 208 USPQ 871 (CCPA 1981); *In re Merck & Co.*, 800 F.2d 1091, 231 USPQ 375 (Fed. Cir. 1986). Furthermore, the prior art of Fujii teaches how to create one and two grooves in transverse areas.

### ***Conclusion***

Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of



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the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

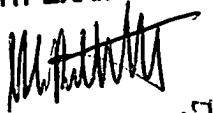
Any inquiry concerning this communication or earlier communications from the examiner should be directed to Keith Walker whose telephone number is 571-272-3458. The examiner can normally be reached on Mon. - Fri. 8am - 5pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Patrick Ryan can be reached on 571-272-1292. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

K. Walker

MARK RUTHKOSKY  
PRIMARY EXAMINER

  
12-1-2007